

**Memorandum**

To: Dave Crane  
Water Pollution Control Laboratory  
2005 Nimbus Road  
Rancho Cordova, CA 95760

Date: June 11, 2002

From: Brian Finlayson, Chief  
Pesticide Investigations Unit  
Office of Spill Prevention and Response  
Department of Fish and Game

Subject: Report of Fish and Wildlife Incidents Involving Pesticides for Calendar Year 2001

During 2001, the Pesticide Investigations Unit of the Department of Fish and Game investigated six (6) fish losses and seventeen (17) wildlife losses throughout California for possible non-target impacts of pesticides. Data for four wildlife incidents are currently pending. The average number of individuals involved in a wildlife incident was less than 10 during 2001. Residues of the anticoagulant rodenticide brodifacoum were identified in five (5) investigations in which clinical signs consistent with anticoagulant toxicosis were not observed.

Fish losses during 2001 with confirmed pesticide exposure averaged less than 500 individuals per incident.

A summary of all fish and wildlife losses can be found in the accompanying table. No other incidents involved pesticides to our knowledge. Please include this data in the Department's annual report of fish and wildlife losses.

Please call me at (916) 358-2950 or Bob Hosea at (916) 358-2954 if you need additional information or clarification.

Attachment

cc: Mr. Scott Paulsen, Chief  
Pesticide Enforcement Branch  
Department of Pesticide Regulation  
P.O. Box 4015  
Sacramento, CA 95812

Mr. F. Nicholas Mastrota  
EIS Database Manager  
Environmental Fate and Effects Division (7507C)  
Office of Pesticide Programs  
U.S. Environmental Protection Agency  
Washington D.C. 20460

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Dave Crane  
June 11, 2002  
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Mr. Rudy Schnagl  
Regional Water Quality Control Board  
Central Valley Region V  
3443 Routier Road, Suite A  
Sacramento, CA 95827-3098

**California Department of Fish and Game, Pesticide Investigations Unit  
2001 Fish and Wildlife Loss Inventory**

| Accession Number | Date     | Species (No.)   | Chemical                        | Certainty Index | County          |
|------------------|----------|---|---------------------------------|-----------------|-----------------|
| 2188A            | 1/8/01   | Red-tailed Hawk (1)   | None Identified                 | 5               | San Joaquin     |
| 2188B            | 1/8/01   | Red-tailed Hawk (1)   | Brodifacoum                     | 2               | San Joaquin     |
| 2189             | 1/12/01  | Beavers (7)   | None Identified                 | 5               | Sacramento      |
| 2190             | 1/24/01  | Coyote (2)  | Pending                         |                 | Los Angeles     |
| 2196A            | 2/5/01   | San Joaquin kit fox (1)   | Brodifacoum*                    | (5)             | Kern            |
| 2196B            | 2/5/01   | San Joaquin kit fox (1)   | Brodifacoum*                    | (5)             | Kern            |
| 2197             | 2/5/01   | Great-horned Owl (2)<br>Cooper's Hawk (2) <sup>1</sup>  | Brodifacoum<br>Bromadiolone (1) | 1               | Los Angeles     |
| 2198             | 2/6/01   | Bobcat (1)  | Brodifacoum*                    | (5)             | Los Angeles     |
| 2227             | 4/6/01   | Bobcat (3)<br>Great-horned Owl (1)  | Pending                         |                 | Los Angeles     |
| 2229             | 4/30/01  | Rainbow Trout (1)   | Copper                          | 3               | Shasta          |
| 2253             | 6/21/01  | Catfish (6-10)<br>Sunfish (Unk.)  | Copper                          | (5)             | Riverside       |
| 2257             | 7/3/01   | Red-tailed Hawk (1)   | Brodifacoum*                    | (5)             | San Luis Obispo |
| 2259             | 7/10/01  | Burrowing Owl   | Pending                         |                 | Santa Clara     |
| 2260             | 7/10/01  | Yellow-billed Magpie (6)  | Diazinon                        | 1               | Sacramento      |
| 2267             | 8/10/01  | Rainbow Trout (20+)   | Copper                          | (5)             | Calaveras       |
| 2269             | 8/22/01  | San Joaquin kit fox (1)   | Brodifacoum*                    | (5)             | Tulare          |
| 2279             | 10/10/01 | Brown Pelican (3)   | None Identified                 | 5               | Ventura         |
| 2280             | 10/16/01 | Rainbow Trout (100+)<br>Pit River Sculpin (Unk.)  | Copper                          | 4               | Shasta          |
| 2283             | 10/18/01 | Threadfin Shad (2,000+)<br>Carp (Unk.)  | Ammonia<br>Guthion              | 2<br>(5)        | San Joaquin     |
| 2284             | 11/30/01 | Raccoon   | Pending                         |                 | Los Angeles     |
| 2287             | 12/13/01 | Red-tailed Hawk   | Avitrol                         | (5)             | Sacramento      |
| 2289             | 12/20/01 | Barn Owl  | None Identified                 | (5)             | Santa Cruz      |
| 2290             | 12/28/01 | LM Bass (1)<br>Carp (1)<br>Goldfish(2)<br>Western Sucker (1)<br>Golden Shiner (1)<br>Bullhead (2) | Acrolein                        | 4               | Merced          |

\* Certainty Index: 1 = most probably; 2 = probably; 3 = possible; 4 = unlikely, and 5 = unrelated

\* Compound identified in samples but unable to determine relationship to loss.

! One of the Cooper's Hawks was negative for anticoagulant compounds and appeared to have died of starvation.

**DEPT. OF FISH & GAME**  
Pesticide Investigations Unit  
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(916) 358-2950

Mr. F. Nicholas Mastrola  
Environmental Fate and Effects Division (7507C)  
Office of Pesticide Programs  
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Washington D.C. 20460



Bob Hosea  
<bhosea@OSPR.DFG.  
CA.GOV>

To: Nicholas Mastrotta/DC/USEPA/US@EPA  
cc:  
Subject: Re: Certainty index on CA incidents

06/26/02 12:33 PM

Nick-

The 5 with brodifacoum were animals that had been recovered in the areas where we have been doing the monitoring for anticoagulants but in the cases of the kit foxes in particular, they were determined to have been stuck by cars. In the case of the Red-tail they had been treating for pigeons at a bridge with Avitrol. This was where the hawk habitually perched. At the tail end of the treatment period a citizen found the bird dead and brought it in to the lab. They were convinced that the bird had died from exposure to avitrol. Examination of the carcass showed that the animal had not consumed any of the pigeons or anything else for a while. It appeared to be emaciated and probably died from starvation.

I can sort of summarize COD for these animals as follows:

2001

2188A: Unknown

2188B: Probably brodifacoum -

2189: pneumonia or respiratory infection. (these animals were in a pond in a housing development and there was a great deal of controversy over their activities among the residents and a class of elementary school children that had adopted them as a class project).

2196A&B: cars

2197: Brodifacoum for both owls and on Cooper's Hawk. The other hawk was starvation.

2198: car

2229: Warden sampling errors and poor investigative procedures along with only one fish recovered.

2253: very low conc. of copper, only part of the park pond had been treated and there was high temps and an algae bloom. Also low Cu conc. in fish gill tissue.

2257: Hawk found dead at base of a transformer. observable burns on feet. Tested for anticoags as part of monitoring project.

2260: Magpies drinking from yard watering puddle. Positive for diazinon and depressed brain ChE.

2267: Stretch of a flume reportedly treated with copper (citizen report) but further investigation by warden showed that the flume had broken and been de-watered for about an hour trapping fish in small shallow hot water puddles.

2269: car impact

2279: unknown. This case was investigated because the animals were found dead in the same harbor in the vicinity of the pear where NPS had been storing and then load the anticoagulant rat bait for the Anacapa Island treatment.

2280: Reported treatment (from a citizen) of a reach of stream by a power company. Loss not reported or investigated until 2-4 days later. Could not gather evidence to support the case.

2283: This case was not investigated thoroughly at the start with sampling errors. It was a flowing stream situation so going back for additional water samples wasn't feasible.

2287: starvation

2289: unknown

2290: trace levels of acrolein were detected but the concentrations were too low. It was also not an area of the county where acrolein had ever been used and there had been not NOI's filed for its use and no

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subsequent use reports submitted. evidence in the fish also didn't detect acrolein.

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 -001- 2000  
 2118: trauma, prob car.  
 2122 : unknown  
 004,005 2132A and B: cars  
 2136: part of a very large die off. The die off may have been either disease or starvation related. There were unconfirmed reports that this corresponded to a precipitous decline in the vole population in the area.  
 2138: same as 2136. there was no investigation into the possibility of West Nile Virus at the time. Also some animals were sent from this die-off to the USFWS Forensics lab in Ashland Oregon. I never heard about their determinations.  
 2142: unknown  
 2143: unknown. Possibly other sources of pollution such as cannery or harvester waste discharged into the water.  
 -006- 2146: Chlorine spill from a treatment plant  
 2147: unknown. Bird was being banded at the time. Possibly capture myopathy.  
 -007- 2148A: anticoagulants  
 2148B: unknown  
 -008- 2162: Salton Sea area. Found dead at a state prison. No pesticides identified, possibly botulism or fish related disease.  
 2164: unknown  
 -009- 2165: fenamiphos exposure on feet of birds bathing and drinking from puddles in vineyard following application through the drip system.  
 -010- 2171: grouse feeding in treated alfalfa field. Both compounds identified from crop and gizzard contents but far below significant or LD 50 values.  
 -011- 2175: all vehicle impacts or physical trauma.  
 -012- 2176: same situation as 2165  
 -013- 2182: Deliberate sabotage at a DFG fish hatchery  
 2186: unknown

Hope this info helps. The past two years have had a lot of cases where citizens report incidents convinced of presence of pesticides and evidence doesn't support conclusion. The anticoagulants are all animals I have been monitoring where they are from specific target populations (kit foxes and bobcat) or they are recovered from environments where I am trying to document non-target primary or secondary exposure (urban/wildland interface). Most of the kit foxes and other large carnivores are all radio collared for other peoples studies.

If you have any questions please give me a call (916) 358-2954.

-Bob

>>> <Mastrota.Nicholas@epamail.epa.gov> 06/26/02 07:35AM >>>

Bob,

I am looking at the 2001 and 2002 incident summary reports that you sent

me. Why are so many of the incidents listed with a certainty index of "5"? The reports says that 5 means "unrelated". Almost all of the brodifacoum incidents are listed as "unrelated". Also a kill of a red-tail hawk is listed as "5" (unrelated) for Avitrol (#2287). Is this correct? Or did someone get the numbering system backwards? Thanks.

Nick

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